REMARKS

Claims 1 and 15 have been amended. Claims 3 and 16-17 have been canceled. Claims 1, 6, and 14 stand rejected under 35 U.S.C. 102(b) based on U.S. Patent No. 5,368,031 issued to Cline et al. ("Cline"). Claims 1-2, 6-7, 9, 11-16, 23-25 stand rejected under 35 U.S.C. 102(e) based on U.S. Patent. No. 6,128,522 issued to Acker et al. ("Acker"). Claims 1-2, 6-25 stand rejected under 35 U.S.C. 102(b) based on U.S. Patent No. 5,485,839 issued to Aida et al. ("Aida"). Claims 3-5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including the elements of the base claim and any intervening claims.

Claims 1, 6, and 14 stand rejected based on Cline. Claim 1 has been amended to include the elements of claim 3. The Examiner has stated that claim 3 is allowable. Therefore, applicants submit that claim 1 as amended is patentable over Cline. Given that claims 6 and 14 depend from claim 1, applicants submit that these claims are also patentable over Cline.

Claims 1-2, 6-7, 9, and 11-14 stand rejected based on Acker.

Claim 1 has been amended to include the elements of claim 3. Therefore, applicants submit that claim 1 as amended is patentable over Acker. Given that claims 2, 6-7, 9, and 11-14 depend from claim 1 as amended, applicants submit that these claims are also patentable over Acker.

Claims 15-16 and 23-25 stand rejected based on Acker. Claim 15 has been amended to include the elements of claims 16 and 17. Acker discloses:

> In this condition, the computer treats inputs from joystick 112 and dial 114 as commanding movement of a theoretical aim point in this fixed local magnetic frame of reference. Thus, as the joystick moves in X' and Y' directions, the position of the theoretical aim point changes in the X and Y directions, respectively, whereas rotation of dial 114 causes movement of the theoretical aim point in the Z direction. A cursor 124 is displayed within the images on monitor

> 110 in a position corresponding to the position of the theoretical aim point. Using the dial and the joystick, the operator moves the cursor 124 to a series of vertex points 126. The operator selects these vertex points so that they constitute to be vertexes of a polyhedron, or set of polyhedrons encompassing the treatment zone to be subjected to heating. In the example illustrated in FIG. 8, the image shows a lesion L. The vertex points 126 are selected to form a pair of truncated pyramids 128a and 128b which cooperatively encompass the lesion L. When the operator brings the cursor to each desired vertex, he issues a further command to the control computer as, for example, by pressing a push button 130 on joystick 112. The computer records the theoretical aim point corresponding to each such vertex in memory 118. The computer further generates a wire-frame image of the polyhedron and vertex on display screen 110 and superposes this image over the image of the subject's tissues derived from the magnetic resonance information.

(column 16, line 67 to column 17, line 17). Acker further discloses:

> From the recorded applied energies and temperature increases, the computer calculates a calibration curve of applied energy versus temperature rise. In the simplest case, the computer calculates only the slopes of a linear plot of temperature rise versus applied energy. . . .
>
> The amount of energy to be applied at each treatment location is selected based on an interpolated calibration curve.

(column 18, lines 12-17 and 30-32).

Acker does not disclose or suggest "the actual thermal dose distribution is compared to the predicted dose distribution after a thermal dose is delivered to a treatment site in the treatment plan to determine remaining untreated locations within the target mass," as recited in claim 15 as amended. Therefore, applicants respectfully submit that claim 15 as amended is patentable over Acker for at least this reason. Given that claims 23-25 depend from claim 15 as amended, applicants submit that these claims are also patentable over Acker.

Claims 1-2 and 6-14 stand rejected based on Aida.

Claim 1 has been amended to include the elements of claim 3. Therefore, applicants submit that claim 1 as amended is patentable over Aida. Given that claims 2 and 6-14 depend from claim 1 as amended, applicants submit that these claims are also patentable over Aida.

Claims 15-25 stand rejected based on Aida, which discloses:

> It is also to be noted that by taking the NMR chemical shift data before and after the ultrasonic wave treatment, it also becomes possible to determine the change of the temperature at various parts within the body of the patient 3, so that the occurrence of the excessive heating can also be visually inspected by the operator. Here, again, for the sake of easy visual comprehension, a difference image in which the chemical shift data taken after the ultrasonic wave treatment are subtracted from the chemical shift data taken before the ultrasonic wave treatment may be calculated by the control circuit unit 12 and displayed on the CRT display 17.

(column 7, lines 33-45). Aida further discloses:

> At this point, the operator enters the ultrasonic wave treatment plan From the operator console 16 while viewing the three-dimensional image information containing the tumor 7 to be treated which is displayed on the CRT display 17. Here, the ultrasonic wave treatment plan specifies the scanning pattern for the focal point 6 and the desired intensity of the intense ultrasonic waves to be applied as well as the desired ultrasonic wave application timings and intervals and other parameters required to be specified in the ultrasonic wave treatment to be made by the ultrasonic wave treatment section.

(column 11, lines 18-28). Aida further discloses:

> The ultrasonic wave treatment is carried out automatically under the control by the control circuit unit 12 according to the ultrasonic wave treatment plan entered by the operator, but the manual control by the operator may also be provided. In a case of the manual control, the deviation from the entered ultrasonic wave treatment plan can be notified to the operator by using either one or both of the alarm sound and display message. Here, however, the operator should be able to revise the ultrasonic wave treatment plan stored in the control circuit unit 12 from the operator console 16 during the ultrasonic wave treatment, if necessary.

(column 12, lines 26-36). Aida further discloses:

> Here, the control circuit unit 42 can calculate the heated region on the tumor 7 in approximation from the positions and shapes of the focal point 6, the fluid equation, and the thermal absorption coefficients of the patient 3. The heated region can be displayed in different color from that used for a case of lithotriptor,

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> in order to prevent the excessive heating. The CRT display 37 may also display the tomographic images obtained by the CT section as in the third embodiment described above.

(column 16, lines 22-30).

Aida does not disclose or suggest "the actual thermal dose distribution is compared to the predicted dose distribution after a thermal dose is delivered to a treatment site in the treatment plan to determine remaining untreated locations within the target mass," as recited in claim 15 as amended. Therefore, applicants respectfully submit that claim 15 as amended is patentable over Aida for at least this reason. Given that claims 18-25 depend from claim 15 as amended, applicants submit that these claims are also patentable over Aida.

CONCLUSION

On the basis of the above remarks, reconsideration and allowance of the claims is believed to be warranted and such action is respectfully requested. If the Examiner has any questions or comments, the Examiner is respectfully urged to contact the undersigned at the number listed below.

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Respectfully submitted,

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